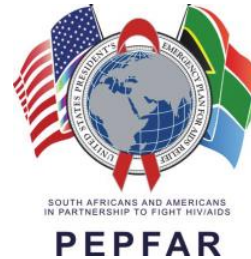




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Smart Linkage to Care (Smart LtC) App

Michelle Moorhouse
01 June 2016

Background

— Research shows smartphone applications (apps) improve adherence through engagement

- Perera *et al.* (New Zealand, 2014) found decreased viral load at 3 months ($p=0.023$) in patients ($n=28$)

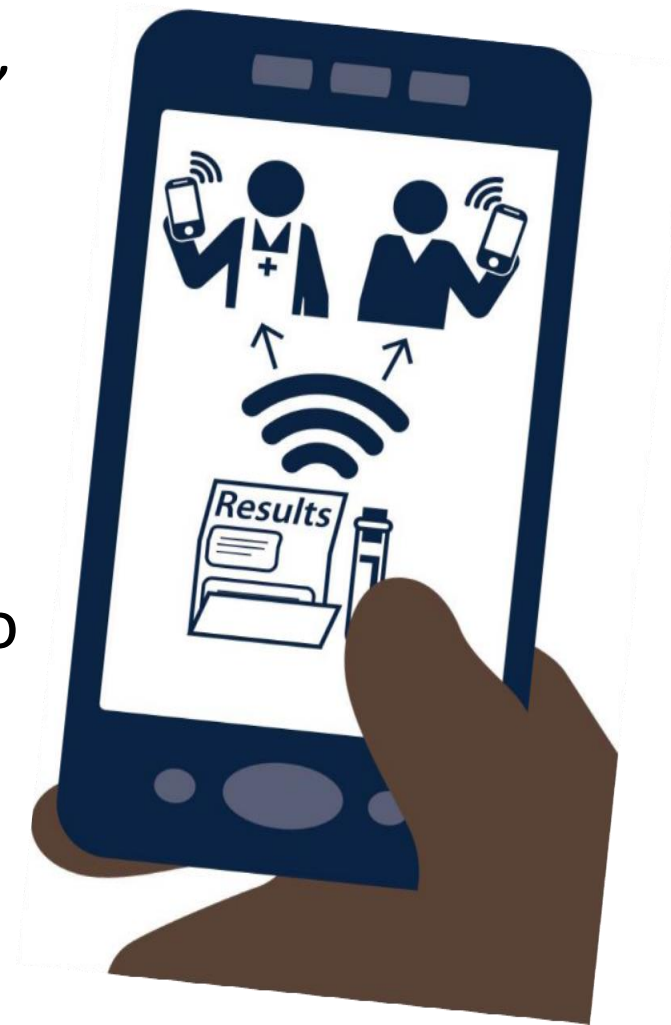
— High smartphone use in SA

- Ownership = 35-50% smartphone
- New sales = 85% smartphone
- Observation of high smartphone (70-80%) use in Hillbrow CHC

Vision and Policy Implications

A vision of an “AIDS-free Johannesburg”

- All patients would have **immediate access** to their lab results through smartphone
- All HIV clinicians with direct access to lab results for **case management**
- Patient better **linked to health services** and receiving **personalised information** – client-centered



Hypothesis



- “Providing smartphone-owning patients their **laboratory results** immediately and securely from the moment of HIV diagnosis, with linked **explanatory information** about what the results mean, along with prompts to **link and re-link with care**, will lead to improved linkage to care, better retention in care, higher patient satisfaction, better knowledge of CD4 and viral load results, improved healthcare worker requests for results, decreased additional blood tests, clinic decongestion, and higher rates of viral suppression.”

Study Overview

- **Method**

- Multicentre RCT in five medium-to-large HCT/ART sites in Johannesburg on 2 000 newly diagnosed HIV clients
 - 50% male and under 25
 - Smartphone app vs. standard of care

- **Primary outcome**

- Linkage to care (defined as attending for a CD4 count measurement PLUS one other NHLS test *within 6 months of HIV diagnosis*)

Smart LtC App: Key Features

- **Password-protected** (username, password and PIN)
 - Lab results, health information and appointment reminders
 - HIV, TB, STI, healthy living information content and links
- English and isiZulu
- Consuming **minimal network data**
- **Non-descript app icon and name**
- For lab results → Simple notification
- **Call-back number** for technical problems
- **Automated prompts** if client not noted to have entered care
- **App usage monitored**, including during clinic visits
- Notification by client in case of self-transfer



Recruitment Methods

- Facility-based fieldworkers using tablet devices for data collection
- Potential patients identified through facility staff
- Pre-screening conducted by fieldworker
 - Demographics
- After confirmation HIV test and CD4 count blood taken, additional screening conducted
 - Phone type, Android version
- If eligible, recruitment:
 - Informed consent
 - HIV knowledge quiz
 - Randomisation; app installed if intervention arm
 - App installed through a Wi-Fi router

Registration and Log-in

39% 16:05

?

SMART link

Username :

Username

Password :

Password

Submit

New User?

SMART link

4G 66% 17:04

?

SMART link

New User

Lab Number / Barcode Number :

0015

☒ Use lab number

First Name :

Vincent

Surname :

Test

ID Number :

ID00015

Date of Birth :

2015/07/15

Username :

V1

Password :

Cancel OK

4G 66% 17:04

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SMART link

New User

ID00015

Date of Birth :

2015/07/15

Username :

V1

Password :

V2

Confirm Password :

V2

Pin :

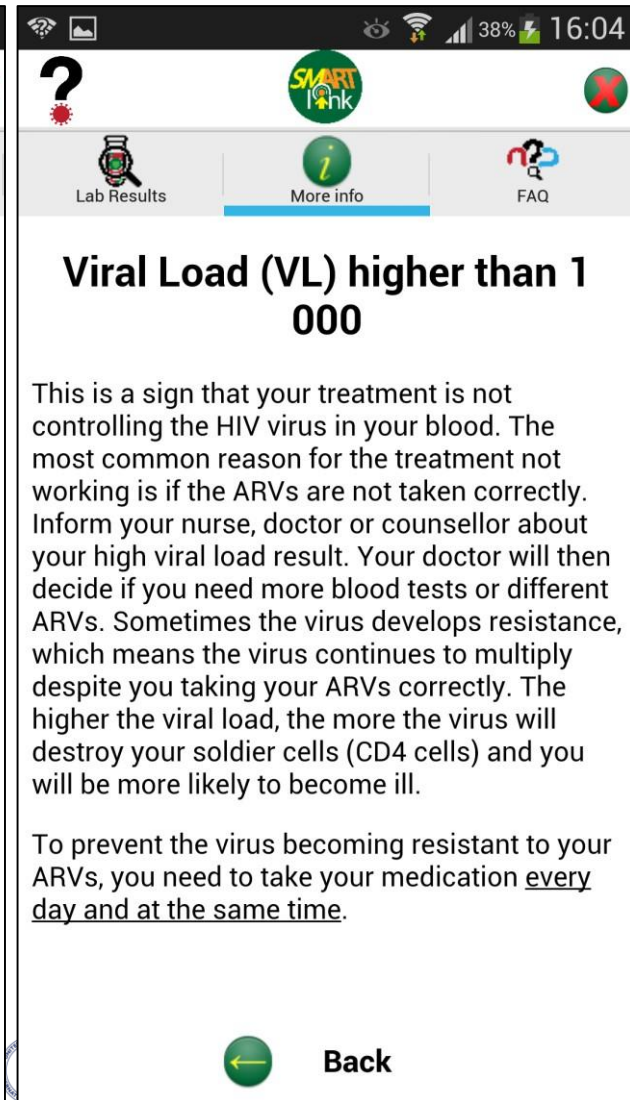
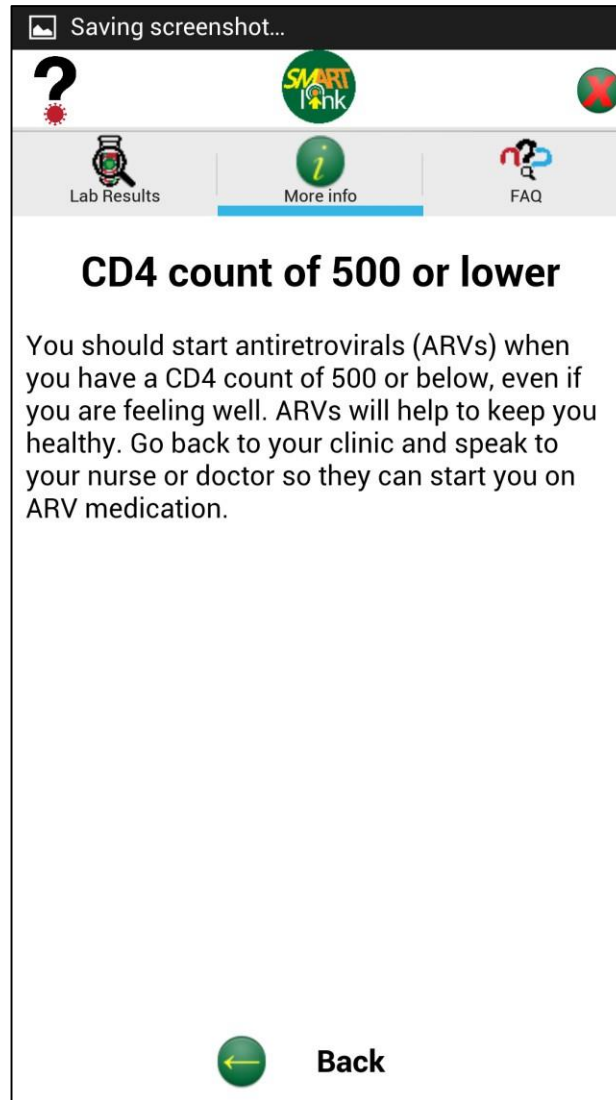
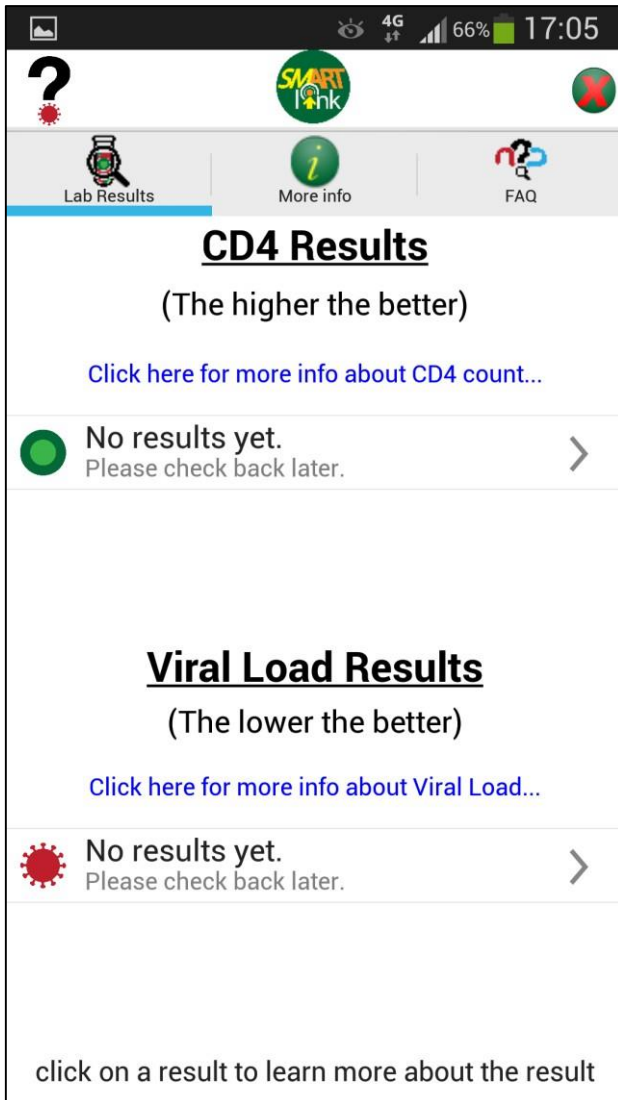
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Confirm Pin :

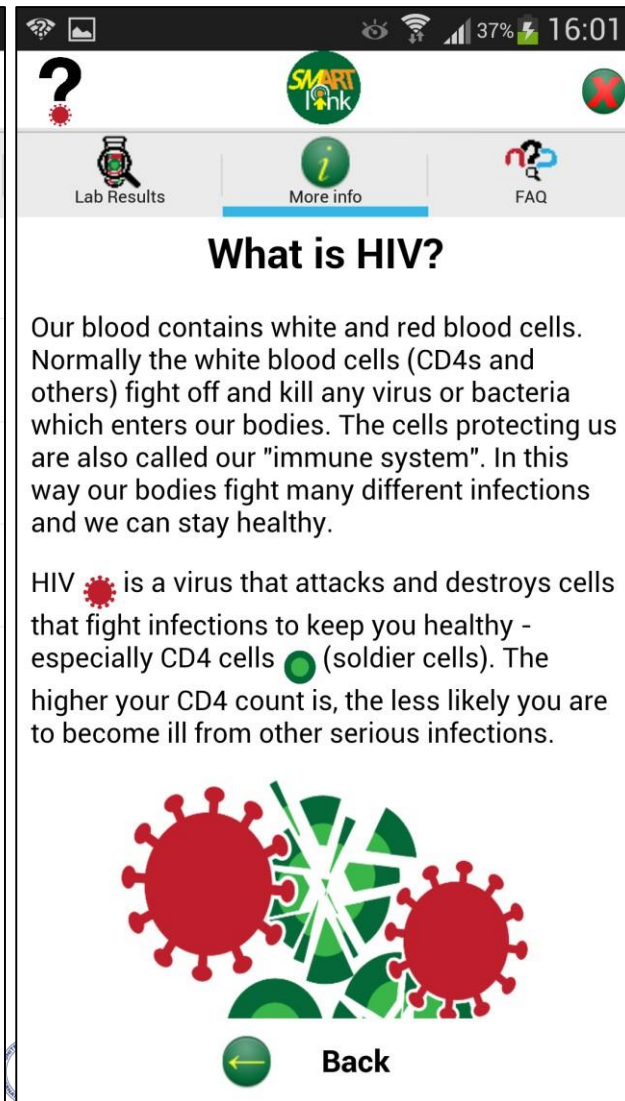
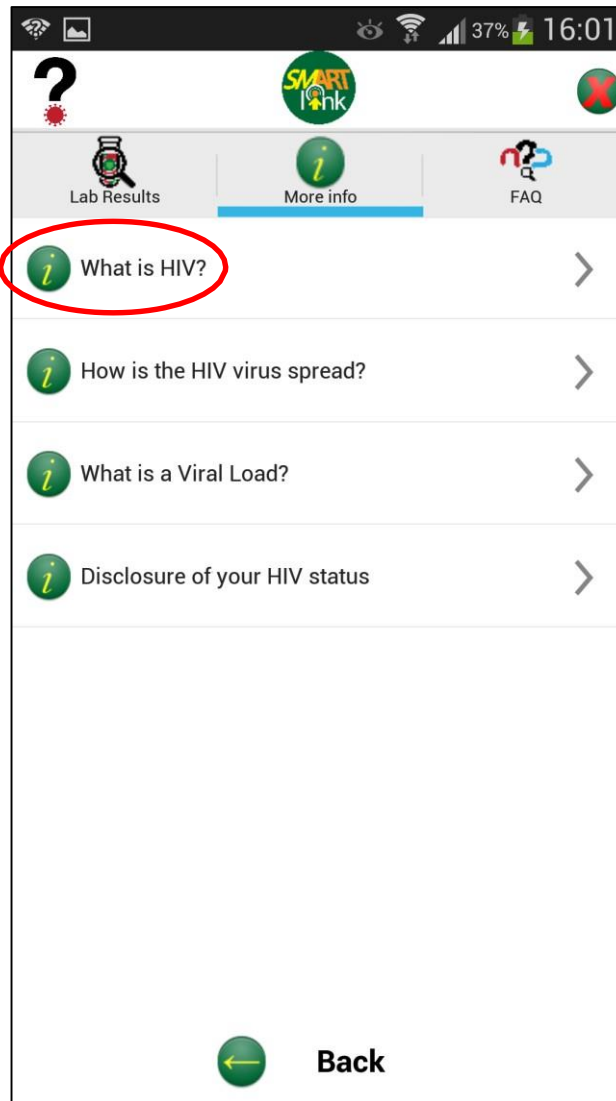
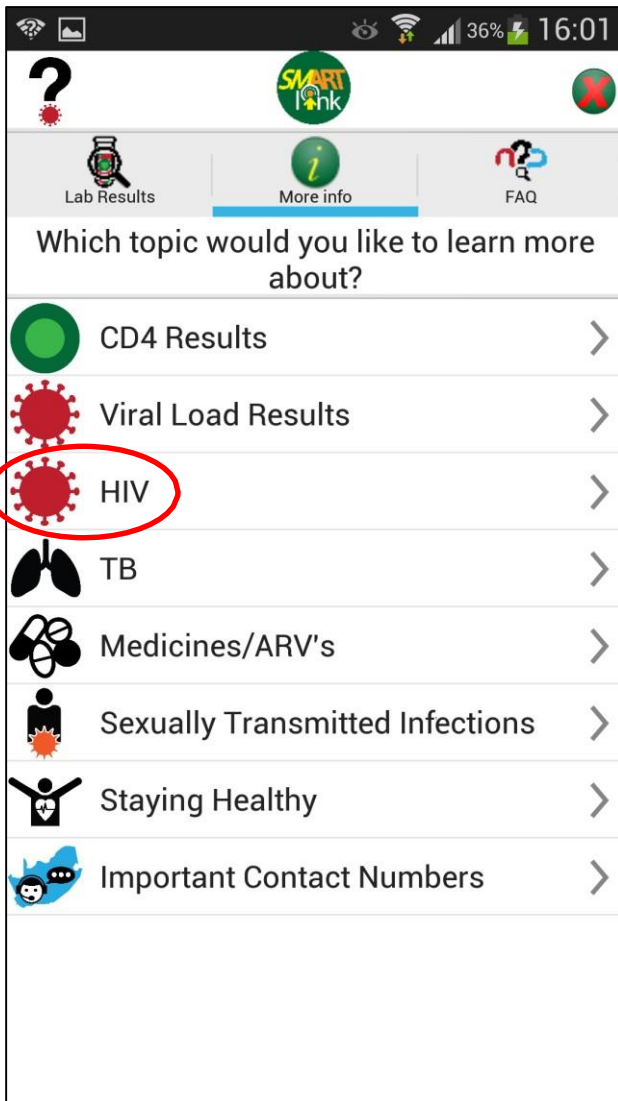
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Cancel OK

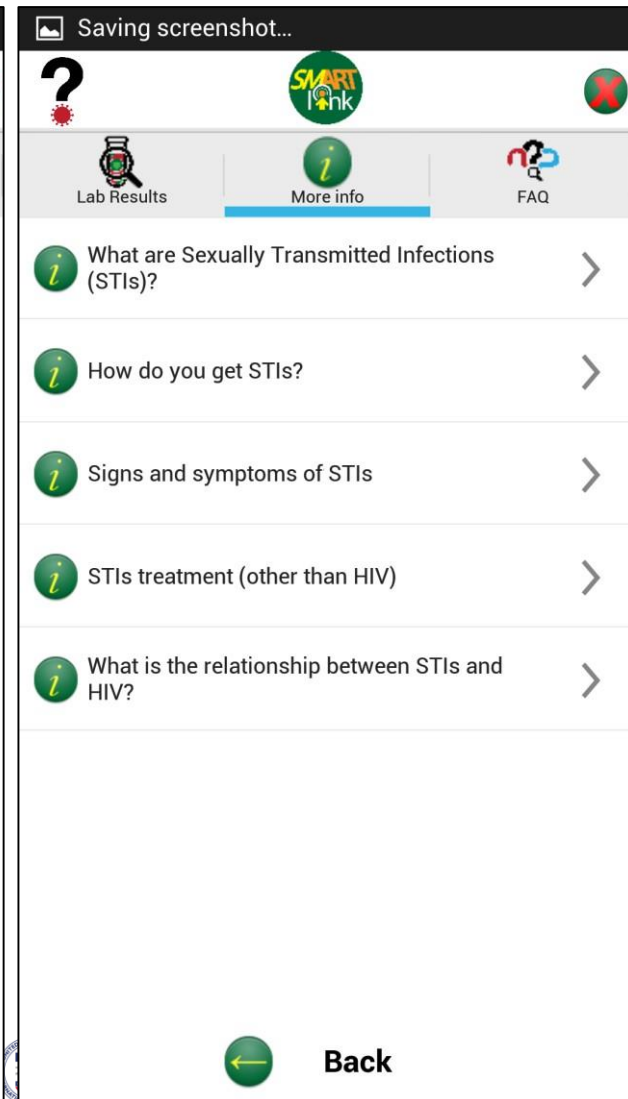
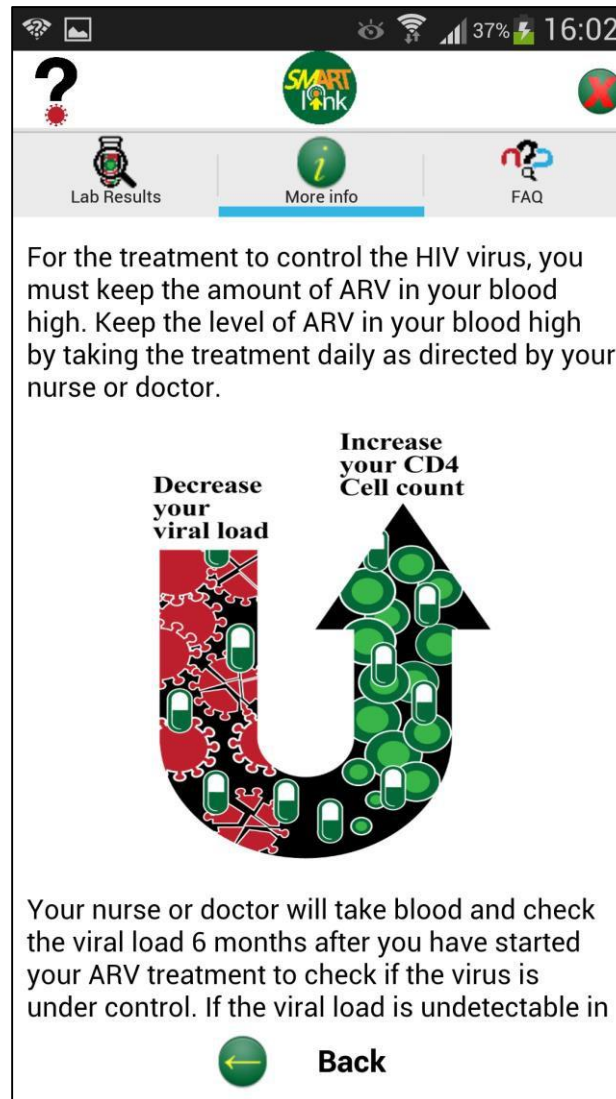
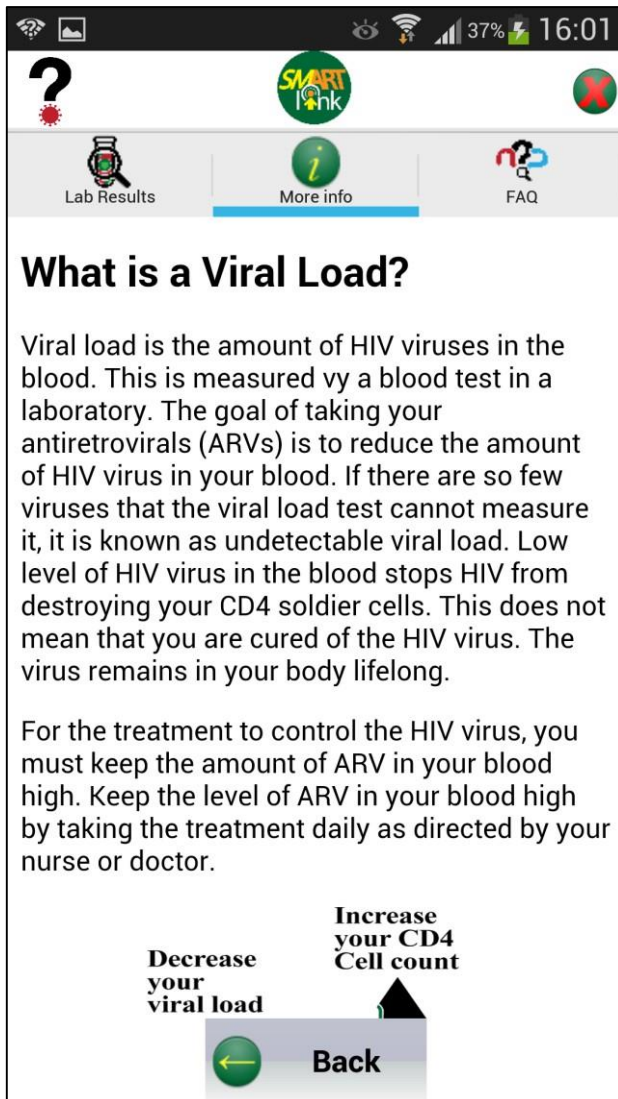
CD4 and Viral Load Results



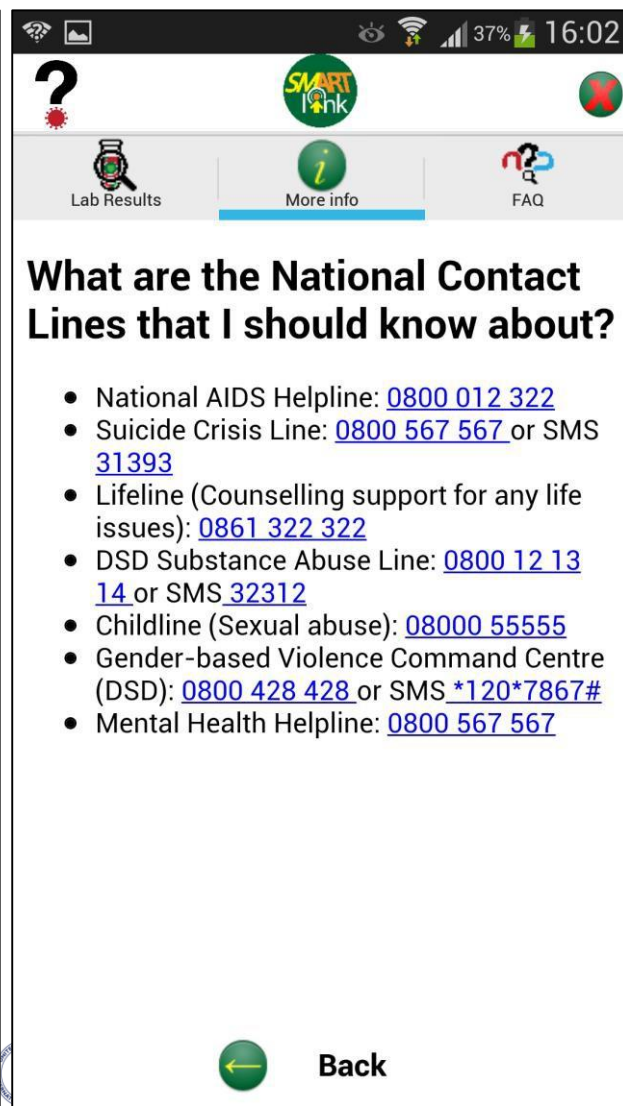
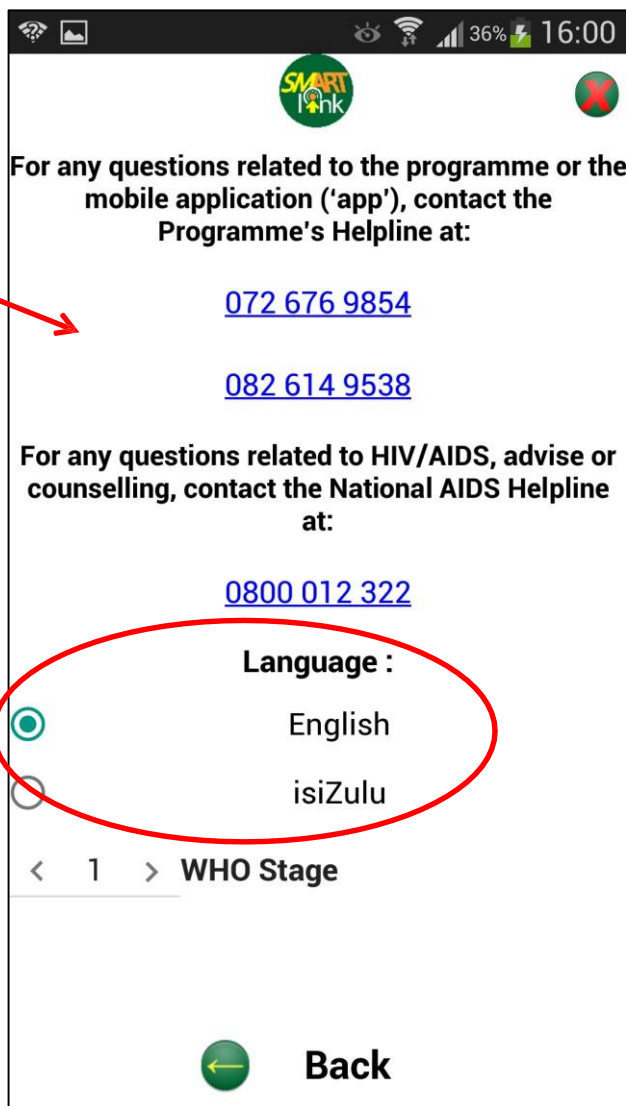
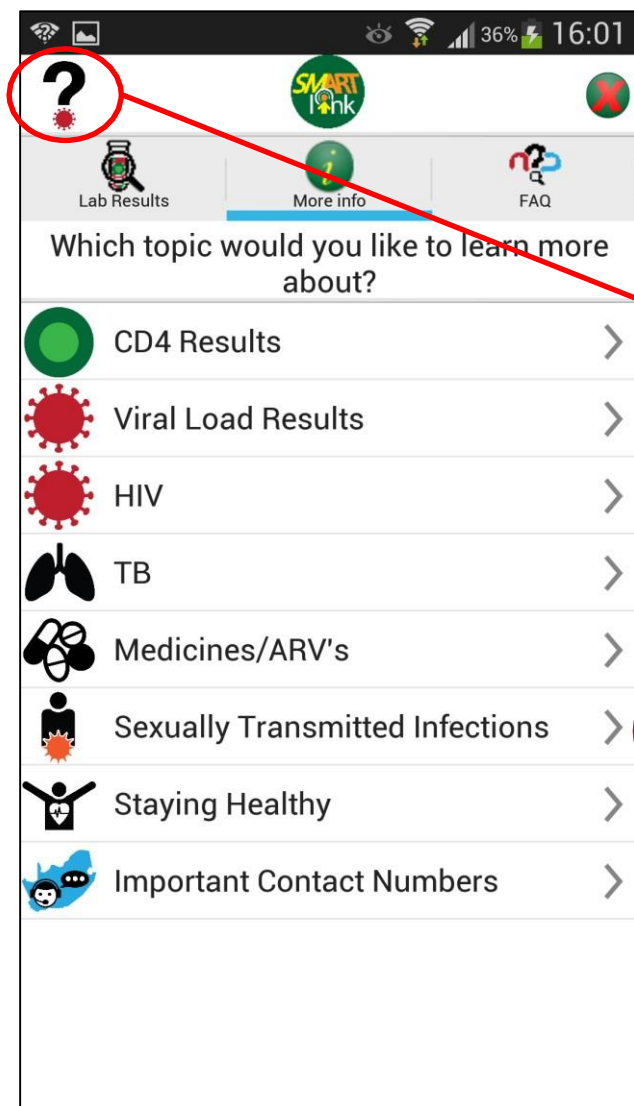
Content



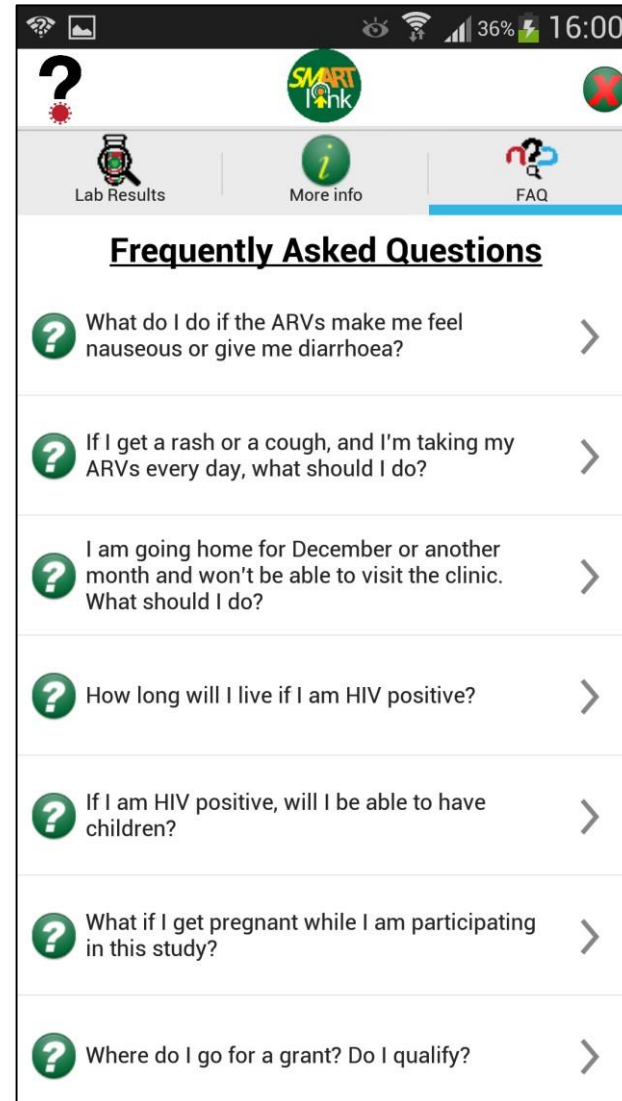
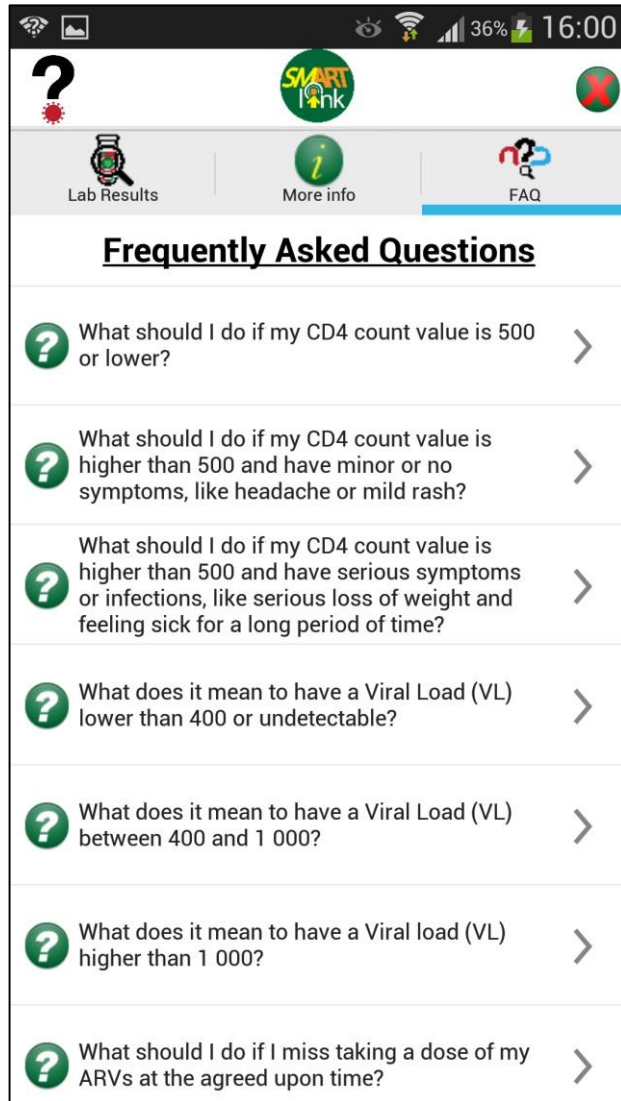
More Content



Programmatic and Social Services



FAQs



Current status

- 4086 newly diagnosed HIV-positive patients screened
 - Pre-screened **ineligibility**:
 - Unwilling to participate/refuse: 96
 - Pregnant: 254
 - Cannot read EN or ZU: 213
 - No photo ID: 2134 (removed as requirement in month 3)
- **1389 eligible patients**
 - No phone, not Android, wrong Android version: 1043
- **346 participants recruited**
 - 178 intervention 169 control

Follow-up

- CD4/viral load sent to app when result ready
- 6 month appointment reminder
 - Notifications at 5.5 and 6 months
- NHLS lab data monitored for follow-up CD4 and/or viral load
- 12 month appointment reminder
 - Notifications at 11.5 and 12 months
- 12 month follow-up with participant
 - HIV knowledge quiz
 - WHO Quality of Life survey
 - ACDG Adherence survey
 - Satisfaction survey

Challenges and Lessons Learned

- Fewer HIV-positive patients than expected (based on DHIS)
 - One quarter the patients in some facilities!
 - Outcome: Lowered recruitment target to 350
- Fewer young people than expected
 - Changed age groups to 18-30 and 31+
- Multiple sites
 - Logistics of research staff getting to sites efficiently with tablet devices
- Identifying positive patients
 - Patients not following through to blood rooms

Challenges cont'd

- App developer challenges
 - Recommended by partner
 - Not experienced with smartphone apps
 - Resulted in:
 - Slow creation of app
 - Basic app development issues
 - Size of app (too large!)
 - Only works on limited devices
 - Account and sign-in errors

Recommendations

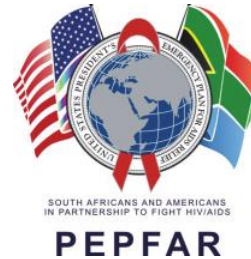
- Find an app developer with significant app development experience
- Offer app on app store (Google Play, Apple App Store etc.)
 - No need for Wi-Fi router
- Fewer sites allows for efficiency
- Be weary of DHIS data

Summary of key points

- Research shows smartphone applications (apps) improve adherence through engagement
- Fewer HIV-positive patients than expected (based on DHIS)
- Find an app developer with significant app development experience



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